non-native -> native?!

- Example http://phonegap.com/
- create apps using a free open source framework that works for several platforms
  - wrap your app (HTML, CSS, JavaScript) with something like **PhoneGap**
  - deploy to **multiple platforms!**

jsfiddle

- loads of similar environments for development:

- http://tinkerbin.com/
- http://tinker.io/
- http://jsfiddle.net
- http://dabblet.com
- http://cssdesk.com
- http://jsbin.com

// GET THE PARTY STARTED!!!!!!
initGame(null);

```
function initGame(canvasElement) {
    var gCanvasElement;
    if (!canvasElement) {
        canvasElement = document.createElement("canvas");
        canvasElement.id = "gCanvas";
        document.body.appendChild(canvasElement);
    }

    gCanvas = canvasElement;
    gCanvas.width = BWIDTH;
    gCanvas.height = BHEIGHT;
    gCanvas.addEventListener("click", gClick, false);

    gTime = setInterval("drawAvatar()", INTERVAL * (1/gLevel));
    drawAvatar();
    gContext = gCanvasElement.getContext("2d");
}
```

```
gCanvas.addEventListener("click", gClick,
                         false);

function gClick(eventHandler) {
    var point = gCursor(eventHandler);

    if (((point.x >= currX) &&
         (point.x <= currX + 300))
          && ((point.y >= currY) &&
              (point.y <= currY + 300))) {
        hit();
    }
}
```

```
var point = gCursor(eventHandler);
```

```
function gCursor(eventHandler) {
    var x;
    var y;
    if (typeof eventHandler.pageX != "undefined" &&
        typeof eventHandler.pageY != "undefined") {
        x = eventHandler.pageX;
        y = eventHandler.pageY;
    }
    else {
        x = eventHandler.clientX
            + document.body.scrollLeft
            + document.documentElement.scrollLeft;
        y = eventHandler.clientY
            + document.body.scrollTop + document.documentElement.scrollTop;
    }
    x -= gCanvas.offsetLeft;
    y -= gCanvas.offsetTop;
    x = Math.min(x, BWIDTH);
    y = Math.min(y, BHEIGHT);
    var point = new Point(x, y);
    return point;
}
```

```
var point = new Point(x, y);
```

```
function Point(x, y) {
    this.x = x;
    this.y = y;
}
```

hit();

```
function hit() {
    gScore += 1;

    if (gScore >= 5) {
        gScore = 0;
        gLevel += 1;
        if (gLevel >= MAXLEVEL) {
            alert("You win!!!");
            gScore = 0;
            gLevel = 1;
        }
        gTime = clearInterval(gTime);
        alert("On to level " + gLevel);
        gTime = setInterval("drawAvatar()", INTERVAL * (1 / gLevel));
    }
    clearInterval(gTime);
    gTime = setInterval("drawAvatar()", INTERVAL * (1 / gLevel));

    document.getElementById("gameScore").innerHTML = gScore;
    document.getElementById("gameLevel").innerHTML = gLevel;
    drawAvatar();
}
```

drawAvatar();

```
function drawAvatar() {
    var avatarImage = new Image();

    gCanvas.width = BWIDTH;
    gCanvas.height = BHEIGHT;
    gContext = gCanvas.getContext("2d");

    gContext.fillStyle = "yellow";
    gContext.fillRect(0, 0, BWIDTH, BHEIGHT);
    avatarImage.src = "http://www.wpclipart.com/cartoon/
monsters/green_monster.png";
    currX = Math.abs(Math.random() * BWIDTH - 50);
    currY = Math.abs(Math.random() * BHEIGHT - 50);
    gContext.drawImage(avatarImage, currX, currY, 400,
40);
}
```

Purpose?

- just in your own words
  - One line that says WHAT A FUNCTION DOES
  - What did you come up with?

HTML history

- 11 year gap between HTML 4.01 and HTML5!
- there are problems inherent in mixing content and presentation.
- XML (eXtensible Markup Language), which shuffles all the presentation off onto XSLT (XML stylesheets).
- Browsers (particularly IE) were slow to implement full XML/XSLT support. That coupled with resistance from web developers effectively killed the move to XML.
- In practice, splitting content and presentation is accomplished by proper usage of HTML and CSS.

More on Tags

- <hr /> tag (horizontal rule).
  - Adjusting the appearance of a horizontal rule can be done in CSS… (more on this soon!)

The image tag is <img />.

- src (the source file) and alt (a text description of the image).

Tags you've seen!

-
  - defines a division or a section in an HTML document.
  - used to group block-elements to format them with styles.

Example (w3schools.com)

```
<!DOCTYPE html>
<html>
<body>

<h3>This is a header</h3>
<p>This is a paragraph.</p>

<div style="color:#00FF00">
  <h3>This is a header</h3>
  <p>This is a paragraph.</p>
</div>

</body>
</html>
```

Output

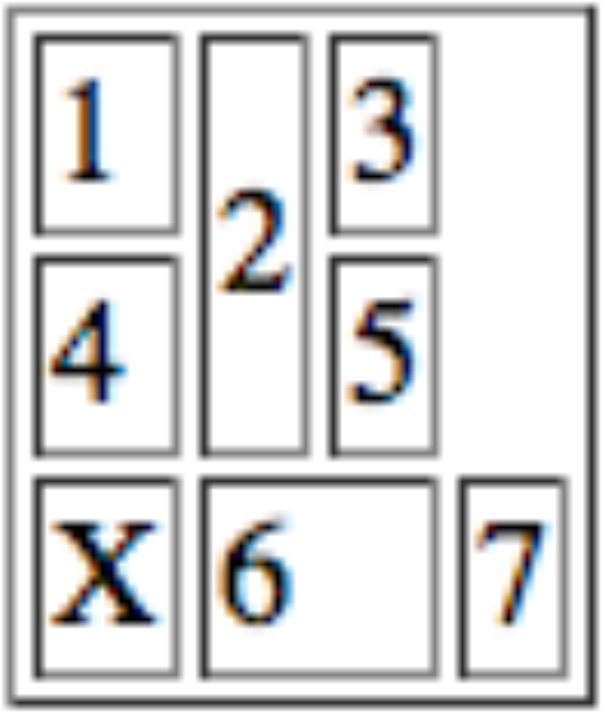
This is a header

This is a paragraph.

This is a header

This is a paragraph.

Tables!



Easy! (try it!)

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
<html>
	<head>
		<title>Column and Row Spanning</title>
	</head>
	<body>
		<table border="1">
			<tr>
				<td>1</td>
				<td rowspan="2">2</td>
				<td>3</td>
			</tr>
			<tr>
				<td>4</td>
				<td>5</td>
			</tr>
			<tr>
				<td>X</td>
				<td colspan="2">6</td>
				<td>7</td>
			</tr>
		</table>
	</body>
</html>
```

Loads of tags to play with

- Not going to be testing you on them!
- Eventually you will get to know more
- Important point
  - Understand the relationship between HTML tags and CSS

Cascading Style Sheets

- CSS
- Goes into the HTML as

```
<head>
    <title>MY TITLE! </title>
    <link rel="stylesheet" type="text/css" href="example-class.css" />
</head>
```

  - The rel attribute should be set to "stylesheet".
  - The type attribute should be set to "text/css".
  - The href attribute should point to the css file.

- Rules relate properties to tags in HTML
  - selector { properties }

Example of a CSS file

```
h1
{
     color: red;
     font-family: Impact;
     text-align: right;
}

ul
{
     list-style-type: square;
     font-family: Comic Sans MS;
}

hr
{
     color: green;
     background-color: green;
     width: 60%;
     height: 8px;
}
```

Loads you can do…

```
.red
{
	color: red;
}
```

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/
html4/strict.dtd">
<html>
	<head>
		<title>CSS Class Example</title>
		<link rel="stylesheet" type="text/css" href="example-class.css" />
	</head>
	<body>
		<div class="red">Here's a little text from class red.</div>
	</body>
</html>
```

Shows on a webpage as…

Here's a little text from class red.

Colour

- We can adjust the color of any element using the color property.
- Similarly, you can adjust the color of the background with the background-color property.
- In general, you'll need to use a # symbol followed by six-digit hexadecimal (base-16) code.
- This is actually an RBG value. The first two digits are the red value, the second two green, and the last two blue.
- You can find colour pickers online to help!

Font

- There are a number of font properties which can be adjusted with CSS.
- You can list multiple fonts.
  - The browser will try to use the first font in the list that is available on the user's machine.
- You can adjust the size of text with font-size
  http://www.w3schools.com/cssref/pr_font_font-size.asp

Part 1 of next Assignment

- TEAM NAMES!!!
  - Post this on Piazza (one per team)
- What will your app do?
- What technology do you want to use to build it?